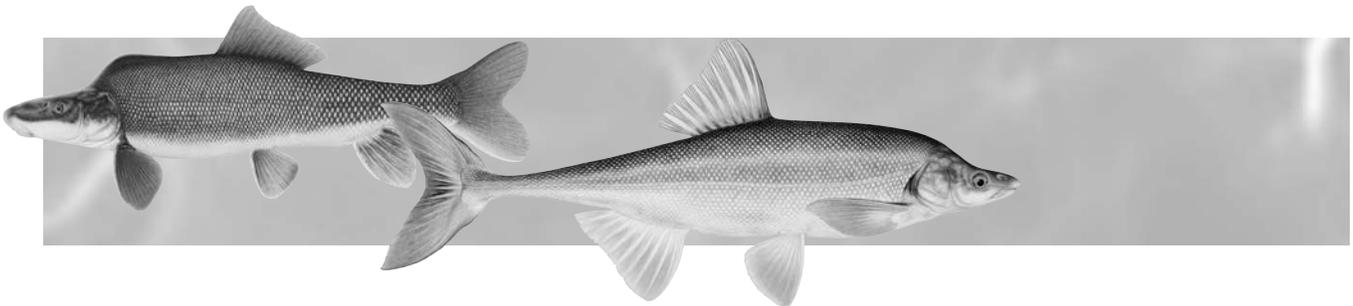
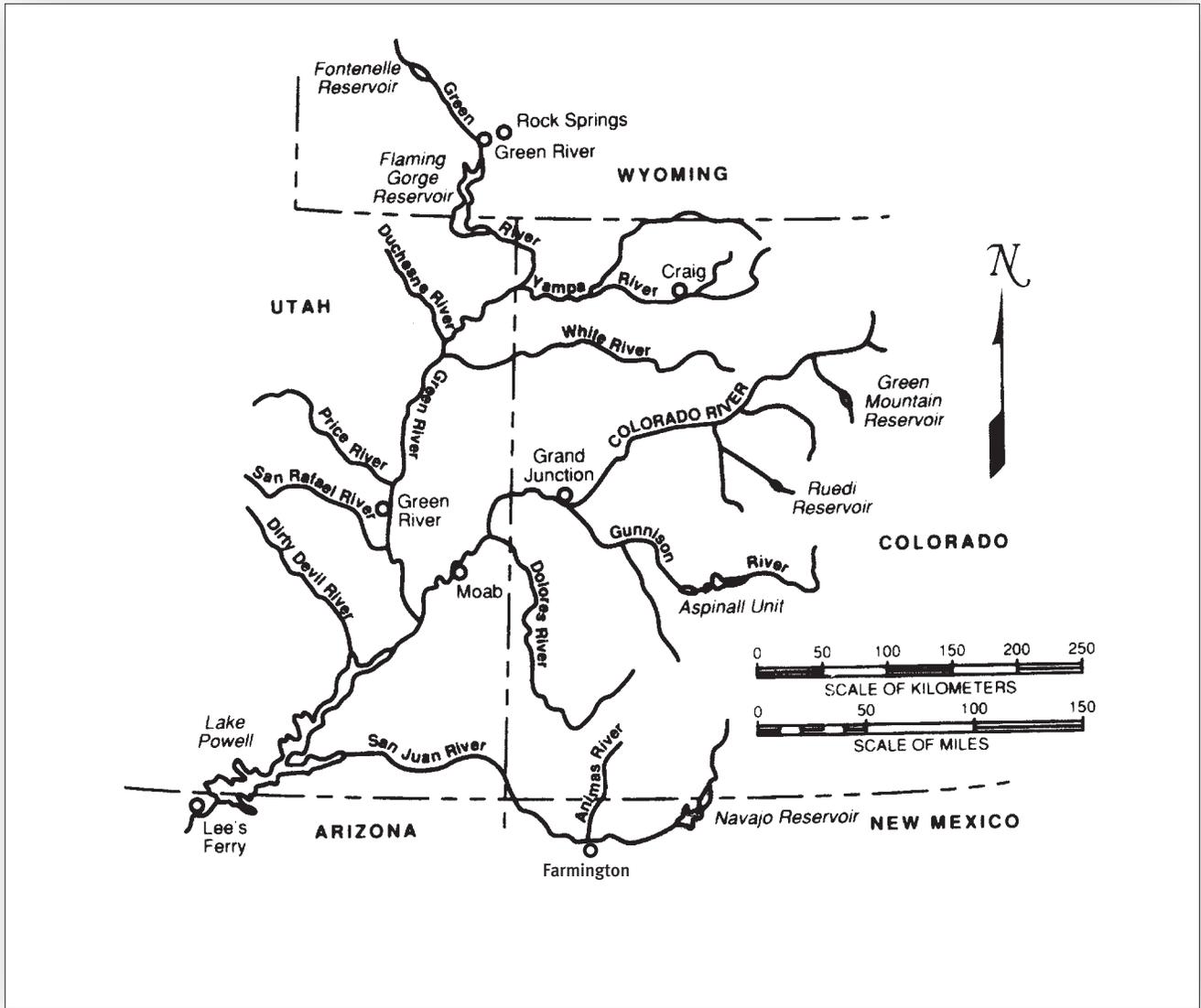


# Upper Colorado River Endangered Fish Recovery Program and San Juan River Basin Recovery Implementation Program

## Program Highlights 2001-2002

*Program Highlights 2001-2002* is a publication of the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These programs represent the broad interests of public, private, and tribal partners dedicated to recovering endangered fishes while water development proceeds in compliance with State and Federal laws. This document is not a publication of the U.S. Department of the Interior or its agencies.





## Geographic Scope

The Upper Colorado River Endangered Fish Recovery Program covers the Colorado River and its tributaries in Colorado, Utah, and Wyoming.

The San Juan River Basin Recovery Implementation Program covers the San Juan River and its tributaries in Colorado, Utah, and New Mexico.

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# Requested FY 2003 Congressional Action Items

Participants in the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program are requesting the following of Congress for Fiscal Year 2003:

## Fish and Wildlife Service Funding

### Upper Colorado River Endangered Fish Recovery Program

- ◆ \$700,000 requested in Region 6's "recovery" funds
- ◆ \$444,000 requested for operation and maintenance of Ouray National Fish Hatchery

### San Juan River Basin Recovery Implementation Program

- ◆ \$154,000 requested in Region 2's "recovery" funds

## Bureau of Reclamation Funding

- ◆ \$6,297,000 in "Endangered Species Recovery Programs and Activities" for the Upper Colorado Region. (\$4,464,000 for Upper Colorado River; \$1,328,000 for San Juan River Basin; \$50,000 for Water and Energy Management and Development; and \$455,000 for Fish and Wildlife Management and Development)

*Details of these requests follow.*

## Fish and Wildlife Service Budget

1. **Support Fish and Wildlife Service funds for the Upper Colorado River Endangered Fish Recovery Program (\$700,000 requested in "recovery" funds).**

Projects to be funded are:

- ◆ **Fish and Wildlife Service program management:** Funding covers salaries and expenses of Program Director and staff.
- ◆ **Population estimation and monitoring program:** This activity supports Service participation in estimating the abundance of fish populations, evaluating stocking, and monitoring fish and habitat response to recovery actions. Monitoring is key to tracking progress toward meeting the downlisting and delisting criteria of the recovery goals.
- ◆ **Data management:** The Service maintains all fish data collected under the Recovery Program in computerized form to facilitate analysis. This includes maintaining the overall database, summarizing data, and providing an annual listing of all tagged fish.

2. **Support Fish and Wildlife Service funds for operation of the Ouray National Fish Hatchery (\$444,000 requested for fish hatchery operation and annual maintenance).**

The Upper Colorado River Endangered Fish Recovery Program requests congressional support for the continued allocation of \$344,000 in appropriated base operation and maintenance funds ("Fisheries Activity; Hatchery O&M Subactivity") to support the current operation of the Service's Ouray National Fish Hatchery in Utah for Fiscal Year 2003. If an additional \$100,000 (total \$444,000) were available, the Service could achieve full production of endangered razorback sucker in 2003, in line with Recovery Program stocking needs to achieve recovery goals.

3. **Support Fish and Wildlife Service funding for the San Juan River Basin Recovery Implementation Program (\$154,000 requested in "recovery" funds).**

Projects to be funded are:

- ◆ **Fish and Wildlife Service program management:** Funds partial salary for the Program Coordinator and Assistant, printing costs for reports, publications, research and monitoring.

## Bureau of Reclamation Budget

### 1. Support Bureau of Reclamation funds for the Upper Colorado River Endangered Fish Recovery and San Juan River Basin Recovery Implementation Programs.

Upper Colorado River and San Juan River Basin Recovery Program participants request congressional support for \$6,297,000 for FY 2003 in “Endangered Species Recovery Implementation Programs” and for Bureau of Reclamation Upper Colorado region. This amount would provide the Upper Colorado River Endangered Fish Recovery Program with \$4,464,000; the San Juan River Basin Recovery Implementation Program with \$1,328,000; \$50,000 for Water and Energy Management and Development; and \$455,000 for Fish and Wildlife Management and Development. The \$4,464,000 supported by upper basin Recovery Program participants, would be used for water acquisition and capital construction projects including:

#### Upper Colorado River Endangered Fish Recovery Program Activities

- ◆ **Fish Passage:** Funds will be used to restore fish passage on the Colorado River at the Grand Valley Project. This activity will benefit razorback sucker and Colorado pikeminnow by providing access to historic habitat, and will support expanded populations to achieve recovery goals.
- ◆ **Water acquisition:** Funds will be used to complete modification and automation of canals to more efficiently operate irrigation projects near Grand Junction, Colorado, and dedicate the “saved” water to the endangered fishes consistent with State water law.
- ◆ **Nonnative fish control:** Funds are needed to modify at least 20 ponds/year to prevent nonnative fish from escaping into the river where they may harm the endangered fishes. Funds also are needed to design and install a fish barrier on Elkhead Reservoir to prevent nonnative fish from escaping into the Yampa River.
- ◆ **Floodplain restoration:** Funds are needed to continue land acquisition, levee removal, and other floodplain restoration activities at high-priority sites. Restoring these floodplains is especially important for the razorback sucker and will benefit a variety of wetland-dependent wildlife.
- ◆ **Endangered fish propagation and stocking ponds:** Funds will be used to complete construction at the Wahweap State Fish Hatchery, Utah, to expand the facility to meet stocking and facility-needs plans. Funds are also needed to purchase “passive integrated transponders” to tag stocked fish to evaluate stocking success.

- ◆ **Diversion canal screening:** Funds are needed to design and construct a screen at the Redlands Diversion Canal to prevent endangered fish from being drawn out of the river and into the canals. Adult endangered fish use the habitat above the diversion. Funds are also needed to construct a screen at the Grand Valley Project on the Colorado River in Colorado to prevent fish from being trapped in irrigation canals and the power plant intakes.

#### San Juan River Basin Recovery Implementation Program Activities

- ◆ The funds in FY 2003 will be used to repay the Bureau of Indian Affairs for a portion of the work already completed on the fish passage at Hogback Diversion and removal of Cudei Diversion, an impediment to the movement of endangered fish. In addition, studies on the feasibility of fish passage at the Arizona Public Service weir will be completed.



Debbie Felker

**Construction is slated to begin in 2003 on a fish passage for the Grand Valley Project Diversion Dam near Grand Junction, Colorado.**



Ron Blesner, Keller-Blesner Engineering

**Removal of the Cudei Diversion Dam on the San Juan River improved habitat for endangered fish by restoring the natural channel. A stub of the dam was left in place to prevent erosion.**

# Extension of the Cooperative Agreement

## Secretary of the Interior Joins Governors and Western Area Power Administration to Extend Model Program

Department of the Interior Secretary Gale Norton joined Colorado Governor Bill Owens, Wyoming Governor Jim Geringer, and Western Area Power Administration Administrator Mike Hacskaylo in signing a cooperative agreement extending the Upper Colorado River Endangered Fish Recovery Program another 10 years.

At the December 6, 2001, ceremony, held at Colorado's State Capitol, the parties renewed their commitment to a nationally recognized endangered species recovery program that allows for continued water development under State law. Utah Governor Mike Leavitt joined the agreement at a separate signing.

"Today's signing ceremony signifies how far we've come in successfully implementing cooperative programs for conservation," Norton said. "When this program began 12 years ago, it was the first of its kind. Never before had such a mix of State and Federal organizations come together formally to work side-by-side with private water and power developers and environmental organizations.

"I commend all of the program's partners for developing creative and effective ways to meet the dual goals of endangered species recovery and water development."

As a result of the cooperative effort, biologists see signs of recovery in both the humpback chub and Colorado pikeminnow populations. They are also re-establishing bonytail and razorback sucker populations. Overall habitat for native fish in the river has improved and water development for agricultural, municipal and hydroelectric projects has been able to continue.

"The Program's early years consisted of extensive research into the habitat and life requirements of the fish species," Recovery Program Director Bob Muth said. "We are now at a juncture where recommended management actions are improving the quality of river habitat."



**National and State leaders sign an extension of the Recovery Program's Cooperative Agreement at Colorado's State Capitol in December. Pictured from left: Western Area Power Administration Administrator Mike Hacskaylo, Wyoming Governor Jim Geringer, Colorado Governor Bill Owens and Department of the Interior Secretary Gale Norton. Utah Governor Mike Leavitt joined the agreement at a separate signing.**

# Long-term Funding Legislation

## Public Law 106-392 Allows Unique Cost-Sharing Strategy To Fund Recovery Efforts

The success of both Recovery Programs depends on obtaining sufficient funds to implement recovery actions such as those identified in the Upper Colorado River Endangered Fish Recovery Action Plan. To meet these funding needs, Public Law 106-392 was signed on October 30, 2000, authorizing the U.S. Bureau of Reclamation (USBR) to provide cost-sharing for capital construction projects for the Upper Colorado River and San Juan River Recovery Programs. Capital construction is not to exceed \$100 million: \$82 million through 2005 for the Upper Colorado River Recovery Program and \$18 million through 2007 for the San Juan River Recovery Implementation Program.

Capital construction for these programs includes building hatchery facilities to produce endangered fish for stocking, restoring floodplain habitat and fish passage, regulating and/or supplying instream habitat flows, installing screens to prevent fish entrapment in canals, and removing and/or relocating non-native fishes.

PL 106-392 authorizes up to \$46 million of congressional appropriations to the USBR toward the cost of completing capital projects for the two Recovery Programs. These funds are declared to be a nonreimbursable Federal expenditure.

the Colorado River Storage Project (CRSP) hydropower facilities and the capital cost of water released from Wolford Mountain Reservoir in Colorado to benefit the endangered fish.

### Cost-sharing by the Four Participating States

		Upper Colorado River Rec. Program	San Juan Rec. Program
Colorado	\$ 9.146 M	\$ 8.065 M	\$ 1.081 M
Utah	3.422 M	3.422 M	0.000 M
New Mexico	2.744 M	0.000 M	2.744 M
Wyoming	1.688 M	1.688 M	0.000 M
<b>Total</b>	<b>\$ 17.000 M</b>	<b>Total \$ 13.175 M</b>	<b>Total \$ 3.825 M</b>

### Established Cost-sharing of Capital Construction for the Upper Colorado and San Juan Recovery Programs

Upper Colorado Recovery Program .....	\$ 82 million
San Juan Recovery Program .....	\$ 18 million
	Total \$100 million

### Sources of Revenue (Cost-sharing)

Federal	Non-Federal
Congress: \$ 46 million	Power Revs: \$ 17 million
	States: \$ 17 million
	Water & Power: \$ 20 million
Total \$ 46 million	Total \$ 54 million

### State Funding

The four participating States and power revenues each will contribute \$17 million, and P.L. 106-392 recognizes the contribution of \$20 million in expenditures that have been incurred for replacement power purchases due to modified operation of

### Power Revenues

The Secretary of Energy, acting through the Western Area Power Administration (WAPA), is authorized to use up to \$17 million of CRSP power revenues for capital projects. These revenues are treated as a non-Federal contribution, but are reimbursable costs assigned to power for repayment under section 5 of the CRSP Act. PL 106-392 requires that the power revenue and State funding match on a rolling two-year basis. Power revenue funding may come from a loan provided to WAPA from the Colorado Water Conservation Board Construction Fund.

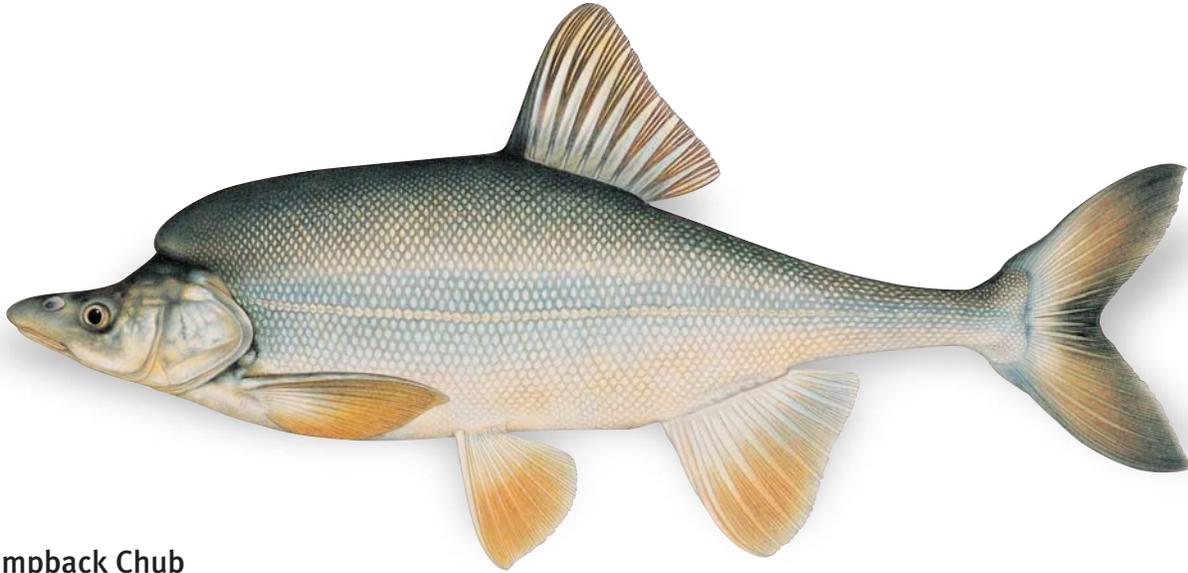
### Base Program Funding Stabilized

PL 106-392 also provides up to \$6 million per year (adjusted annually for inflation) of CRSP hydropower revenues for base (non-capital) funding for the two Recovery Programs. Through 2011, annual "base" funding of up to \$4 million may be provided for the Upper Colorado Program and up to \$2 million may be provided for the San Juan Program. After 2011, power revenues may only be used to operate and maintain the capital projects and for monitoring, unless Congress authorizes additional funding.

# Endangered Fish

## Status and Recovery Highlights

Upper Colorado River and San Juan River Recovery Programs



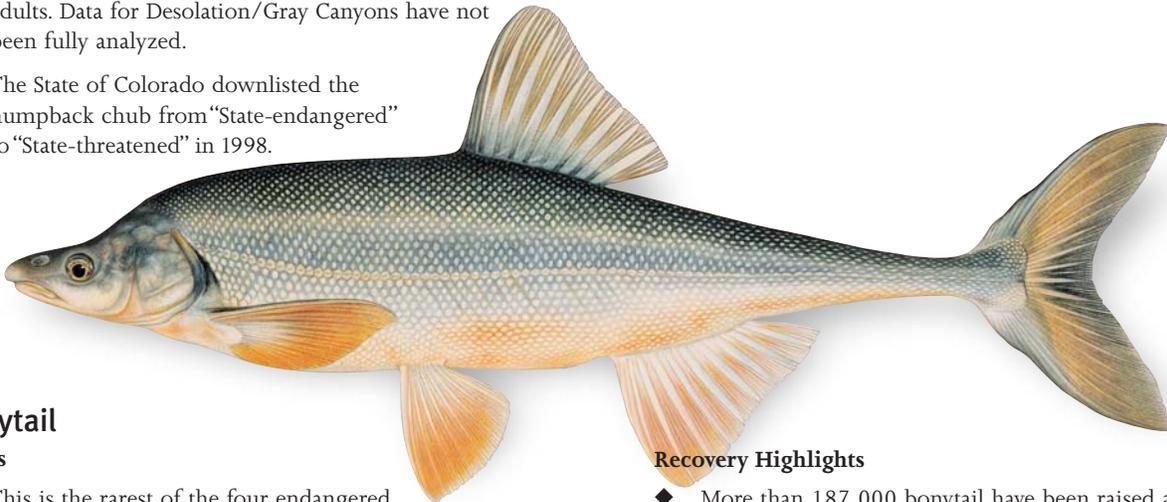
### Humpback Chub

#### Status

- ◆ Populations appear healthy and stable in areas of the Upper Colorado River Basin where they occur. The population at Black Rocks and Westwater Canyon, near the Colorado-Utah border, is estimated at 2,200 adults. The Yampa Canyon and Cataract Canyon populations are small, consisting of about 500 adults. Data for Desolation/Gray Canyons have not been fully analyzed.
- ◆ The State of Colorado downlisted the humpback chub from “State-endangered” to “State-threatened” in 1998.

#### Recovery Highlights

- ◆ Current populations in the Green and Colorado rivers meet or exceed the downlisting demographic criteria in the draft recovery goals (see page 15).



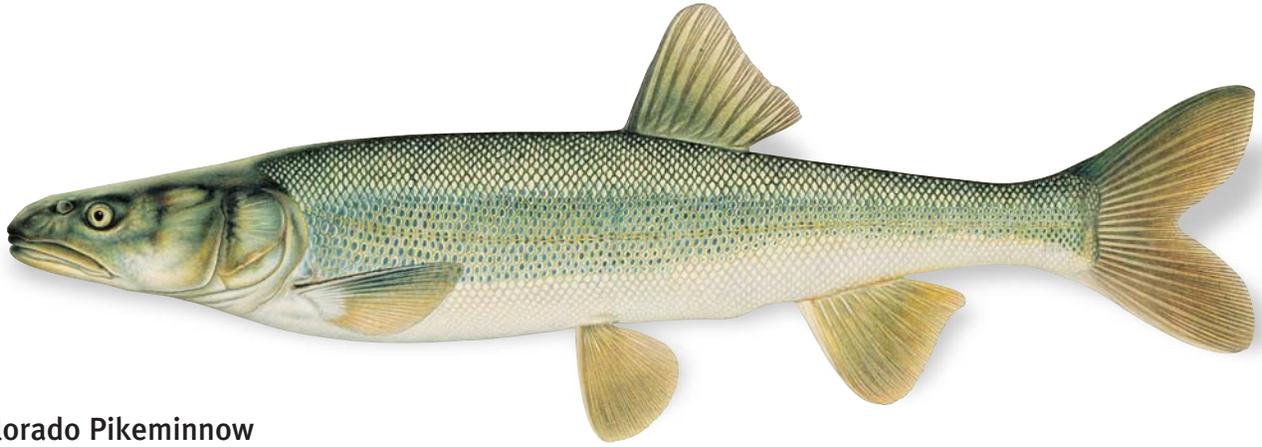
### Bonytail

#### Status

- ◆ This is the rarest of the four endangered Colorado River fish species. Before stocking began, bonytail had virtually disappeared in the Upper Colorado River Basin.

#### Recovery Highlights

- ◆ More than 187,000 bonytail have been raised and stocked in the Colorado and Green rivers. Of those, 10,000 were reintroduced in the Colorado River in Colorado for the first time in 2001. Another 28,000 were stocked in the Colorado River in Utah. More than 56,500 went into the Green and Yampa rivers in 2001.
- ◆ Some stocked fish have been recaptured, indicating at least short-term survival.



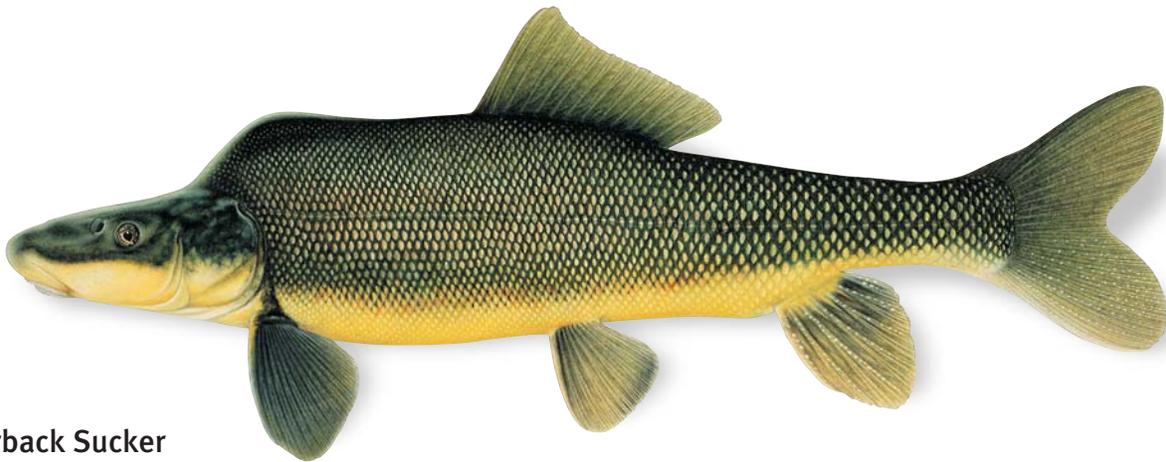
## Colorado Pikeminnow

### Status

- ◆ Since 1991, the abundance estimates for adult Colorado pikeminnow in the Colorado River have tripled. The current population estimate is 700 adults. Recent estimates in the Green River system place the number of adults at about 5,000.
- ◆ The State of Colorado downlisted the Colorado pikeminnow from “State-endangered” to “State-threatened” in 1998.
- ◆ In the San Juan River, the wild Colorado pikeminnow population appears to be less than 50 adults. A stocking program is being implemented.

### Recovery Highlights

- ◆ Current populations in the Colorado and Green rivers meet or exceed the downlisting demographic criteria in the draft recovery goals (see page 15).
- ◆ In 2001, 148 adult Colorado pikeminnow were stocked in the San Juan River. In addition, approximately 200,000 fingerlings are expected to be stocked in the fall 2002.



## Razorback Sucker

### Status

- ◆ The population continues to decline in some areas of the Upper Colorado River Basin. Because of its scarcity, this species has been given highest priority for hatchery raising and stocking.
- ◆ The Green River population contains fewer than 500 wild adults. These fish comprise a spawning population.
- ◆ Despite the relatively low numbers of razorback sucker that have been stocked in the San Juan River, some have survived to adulthood and successful spawning by stocked fish has been documented.

### Recovery Highlights

- ◆ Nearly 50,000 razorback sucker have been raised and stocked in the Upper Colorado River Basin to date. Another 16,200, 12-inch razorback sucker will be stocked in the fall of 2002.
- ◆ An estimated 14,800, 12-inch razorback sucker will be stocked in the Green River system in the fall of 2002.
- ◆ Some stocked fish in the Green River have been recaptured at spawning sites, indicating that they are becoming part of the wild population.
- ◆ In the San Juan River, 6,835 adult and subadult razorback sucker have been stocked since 1994. Approximately 2,000 adult fish will be stocked in 2002.

Illustrations © Joseph R. Tomelleri

# Program Overview

## Upper Colorado River Endangered Fish Recovery Program

**T**he Upper Colorado River Endangered Fish Recovery Program is a cooperative partnership created to recover the endangered humpback chub, bonytail, Colorado pikeminnow, and razorback sucker while allowing for continued and future water development. The Recovery Program was initiated in 1988 when a cooperative agreement was signed by the Governors of Colorado, Utah, and Wyoming; the Secretary of the Interior; and the Administrator of Western Area Power Administration.



Debbie Felker

**U.S. Fish and Wildlife Service Biologist Mike Montagne readies eggs for hatching during the process of raising razorback sucker at the Grand Valley Endangered Fish Hatchery near Grand Junction, Colorado.**

### Program Partners

- ◆ Colorado River Energy Distributors Association
- ◆ Colorado Water Congress
- ◆ Environmental Defense
- ◆ National Park Service
- ◆ State of Colorado
- ◆ State of Utah
- ◆ State of Wyoming
- ◆ The Nature Conservancy
- ◆ U.S. Bureau of Reclamation
- ◆ U.S. Fish and Wildlife Service
- ◆ Utah Water Users Association
- ◆ Western Area Power Administration
- ◆ Wyoming Water Association

### Program Elements

- ◆ **Habitat management** includes developing river flow recommendations, identifying and acquiring instream

flows, changing operations at Federal dams, and operating other reservoirs in a coordinated manner to benefit the endangered fishes.

- ◆ **Habitat development** includes restoring floodplain/wetland habitats, constructing fish passageways around dams and other barriers in the river, and installing fish screens to prevent endangered fish from becoming trapped in diversion canals.
- ◆ **Nonnative species and sportfishing** entails managing detrimental nonnative fish species in habitat considered “critical” to endangered fish. This also involves educating and distributing information to anglers to reduce accidental capture of endangered fish.
- ◆ **Endangered fish propagation and stocking** involves establishing facilities to hold adult broodstock to prevent extinction of these rare fish and maintain their genetic resources; developing growout ponds; conducting research to improve survival of endangered fish raised in captivity and stocked in the wild; and supporting State stocking and reintroduction efforts.
- ◆ **Research, monitoring, and data management** provides information about what the endangered fishes need to survive, grow, and reproduce in the wild. Efforts include compiling data on the numbers, sizes, and locations of endangered fishes and developing population estimates to monitor progress toward achieving recovery goals.



Colorado Division of Wildlife

**The State of Colorado’s J. W. Mumma Native Aquatic Species Restoration Facility in Alamosa, Colorado, will begin to raise Colorado pikeminnow this summer.**

# San Juan River Basin Recovery Implementation Program

The San Juan River Basin Recovery Implementation Program was established in 1992 to protect and recover Colorado pikeminnow and razorback sucker in the San Juan River Basin while water development proceeds in compliance with all applicable Federal and State laws, including fulfillment of Federal trust responsibilities to several Native American tribes. It is anticipated that actions taken under this Recovery Program to recover the Colorado pikeminnow and razorback sucker will also provide benefits to other native fishes in the basin and prevent them from becoming endangered in the future.

## Program Partners

- ◆ Jicarilla Apache Nation
- ◆ Navajo Nation
- ◆ Southern Ute Indian Tribe
- ◆ Ute Mountain Ute Tribe
- ◆ State of Colorado
- ◆ State of New Mexico
- ◆ U.S. Bureau of Indian Affairs
- ◆ U.S. Bureau of Land Management
- ◆ U.S. Bureau of Reclamation
- ◆ U.S. Fish and Wildlife Service
- ◆ Water Development Interests

## Program Elements

- ◆ **Protection of genetic integrity and management and augmentation of populations** involves completing genetics management and augmentation plans, establishing refugia with stock taken from the wild, and augmenting wild populations of endangered fish species.
- ◆ **Protection, management, and augmentation of habitat** involves identifying important reaches of the San Juan River for different life stages of the endangered fish by mapping current conditions, determining relationships between flow and habitat, and determining flow needs. In addition, augmentation of habitat includes providing fish passage around migration barriers.
- ◆ **Water quality protection and enhancement** involves monitoring existing water quality conditions, evaluating historic information, identifying types and sources of contamination, and investigating changes in water chemistry.
- ◆ **Interactions between native and nonnative fish species** involves determining the distribution and abundance of

nonnative species, identifying and characterizing habitats used by the nonnative fish, discontinuing stocking of nonnative species in areas where endangered fish occur, and control of nonnatives through removal efforts.

- ◆ **Monitoring and data management** is needed to evaluate status and trends of endangered fish species as well as other native and nonnative species and to define the Recovery Program's overall success in achieving recovery goals.



U.S. Fish and Wildlife Service

Large Colorado pikeminnow are occasionally found in the Colorado River system as biologists, like Mark Fuller, U.S. Fish and Wildlife Service, conduct research activities related to recovery of the species.



San Juan River Recovery Program

Biologists electrofish to locate and remove channel catfish downstream of the Public Service New Mexico diversion on the San Juan River.

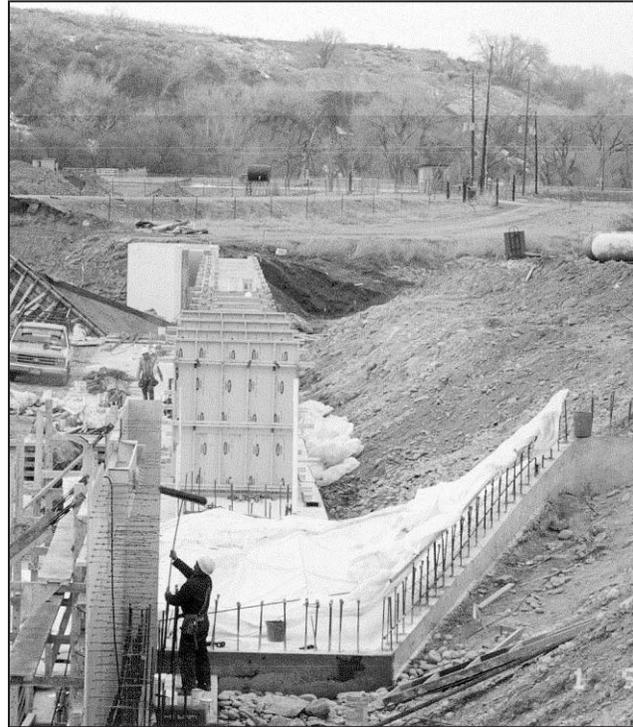
# Highlights of Recovery Program Accomplishments

## Habitat Management

### Upper Colorado River Endangered Fish Recovery Program

- ◆ Since 1988, the Service has consulted on 649 water projects depleting approximately 1,675,000 acre-feet per year in the upper basin using the Recovery Program as a reasonable and prudent alternative. The Service simplified the section 7 consultation process, and waives depletion charges for water projects that deplete less than 100 acre-feet of water per year.
- ◆ Canal checks were installed in the Government Highline Canal to improve efficiency and reduce diversions by more than 28,000 acre-feet per year on average. This reduced the diversion demand up to 400 cubic feet per second. The “saved” water remains in the river and is legally protected for the endangered fishes.
- ◆ During late summer 2001, public and private cooperation resulted in the release of 64,577 acre-feet of water from Green Mountain, Ruedi, Wolford Mountain, and Williams Fork reservoirs to help meet Service flow recommendations for endangered fish in the Colorado River.
- ◆ Recovery Program participants coordinated spring operations of several Colorado reservoirs in recent years to provide additional flows in the Colorado River. On average, about 2,500 cubic feet per second have been added to the spring peak when flows are predicted to be in a range that can create and maintain endangered fish habitat.
- ◆ The Bureau of Reclamation is preparing an environmental impact statement (EIS) on the operation of Flaming Gorge Dam to benefit endangered fishes. The final EIS is slated for completion in 2003.
- ◆ A draft management plan for the Yampa River was completed in October 2001, detailing specific actions the Recovery Program deems necessary to recover the endangered fishes. A programmatic biological opinion (PBO) will be completed this fall to determine if the plan satisfies the requirements of the Endangered Species Act for existing and future water development projects. The PBO will simplify future section 7 consultations for Colorado and Wyoming water development in the Yampa River Basin.

- ◆ Research began in 2001 to develop a temperature model for the Gunnison River to explore ways of warming the water to improve fish habitat.



U.S. Bureau of Reclamation

**The Grand Valley Irrigation Company cooperated to install a screen at its diversion dam on the Colorado River near Palisade, Colorado. Slated for completion in spring 2002, the screen will prevent endangered fish from becoming trapped in the canal.**

### San Juan River Basin Recovery Implementation Program

- ◆ The Bureau of Reclamation proposes to operate Navajo Dam and Reservoir to implement flow recommendations on the San Juan River. An environmental impact statement is currently being written for the implementation of the flow recommendations and a draft is expected to be released in 2002.
- ◆ The Recovery Program is evaluating the need for further habitat improvement for all life stages of the endangered fishes.

# Habitat Development

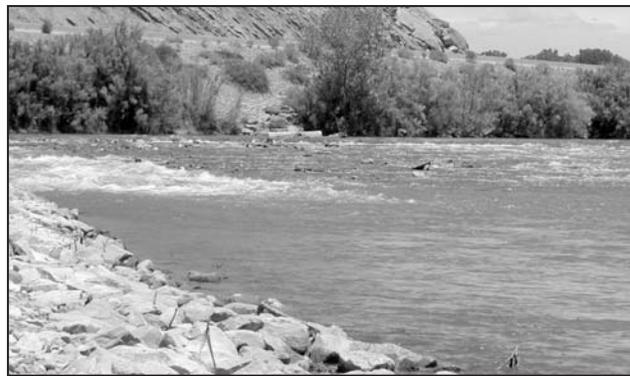
## Upper Colorado River Endangered Fish Recovery Program

- ◆ Five razorback suckers used the 350-foot-long fish ladder at the Redlands Diversion Dam on the Gunnison River for the first time during summer 2001, confirming that this species can negotiate this type of passageway. Since the ladder was completed in 1996, it has been used by 52 Colorado pikeminnow and more than 45,000 other native fish.
- ◆ A fish passage was completed in January 1998 at the Grand Valley Irrigation Company (GVIC) Diversion Dam on the Colorado River. GVIC cooperated to install a screen in 2002 to protect endangered fish from being swept into the canal.
- ◆ Construction is slated to begin in 2003 on a fish passage for the Grand Valley Project Diversion Dam. Once this and Price-Stubbs passage restoration are completed, endangered fish will have access to an additional 53 miles of historic habitat.
- ◆ The Recovery Program sponsored a workshop in November 2001 to review the habitat-restoration program. Workshop findings and continued evaluation of the habitat-restoration program will guide future Recovery Program actions to provide habitat for endangered fish.
- ◆ Floodplain/wetland habitat has been improved at five Bureau of Land Management sites on the Green River, three sites at Ouray National Wildlife Refuge, two sites on the Colorado River near Grand Junction and at the Escalante State Wildlife Area on the Gunnison River.

- ◆ The Recovery Program has acquired 976 acres of floodplain/wetland habitat along the Green, Colorado, and Gunnison rivers. Offers are active on an additional 98 acres along the Colorado River.

## San Juan River Basin Recovery Implementation Program

- ◆ Flow regimes to restore native fish habitat have been implemented.
- ◆ Fish passage at the Hogback Diversion Dam was completed in 2001 and the Cudei Diversion Dam was removed. Construction of the fish passage structure at the Public Service Company of New Mexico weir will be completed in 2002. Fiscal Year 2003 funds will be used to construct fish passage at the Arizona Public Service weir.



Ron Bliessner, Keller-Bliessner Engineering

**Completion of fish passage in 2001 at the Hogback Diversion Dam on the San Juan River gives endangered fish access to an additional 8 miles of historic habitat.**

# Nonnative Species, Sportfishing, and Public Information/Involvement

## Upper Colorado River Endangered Fish Recovery Program

- ◆ To date, the Utah Division of Wildlife Resources, Colorado Division of Wildlife, and the Service have removed more than 24,900 nonnative channel catfish; 23,889 nonnative sunfish and bass; and 319,500 nonnative minnows from rivers in the Upper Colorado River Basin.
- ◆ In 2001, a total of 500 northern pike were removed from the Yampa River and translocated to Rio Blanco Reservoir and Yampa State Wildlife Area ponds in northwest Colorado. Biologists removed 250 northern pike from the Green River by September 2001.
- ◆ Chemical reclamation of ponds adjacent to the Colorado and Gunnison rivers to reduce sources contributing nonnative fishes to riverine habitats began in 1998. As of

August 2001, 127 ponds had been surveyed. Of those 32 were chemically reclaimed. An additional 23 ponds are targeted through 2003.

- ◆ A fish barrier net installed in 1999 in Highline Lake Reservoir near Grand Junction, Colorado, has effectively kept sportfish and endangered fish apart. This effort has resulted in warmwater fishing opportunities that are compatible with endangered fish recovery. Similar separation devices are being considered for other reservoirs.
- ◆ The Recovery Program sponsored a workshop in February 2002 to evaluate the effects of nonnative fish removal efforts on native and endangered fish populations. Workshop findings will guide future Recovery Program actions to reduce the impacts of nonnative fishes on endangered fishes.

(Continued on next page)

**Nonnative species, sportfishing** (continued from previous page)

- ◆ Recovery Program participants coordinate public involvement activities for key Recovery Program actions, including Colorado instream-flow acquisition, construction of fish passageways, coordinated reservoir operations, water releases from Ruedi Reservoir, nonnative fish management actions, acquisition and restoration of wetland habitat, and Yampa River and Grand Valley water management.
- ◆ The Recovery Program produces a wide range of educational materials, including a newsletter, fact sheets, and interpretive exhibits.
- ◆ The Recovery Program maintains a web site at <http://www.r6.fws.gov/coloradoriver>.

**San Juan River Basin Recovery Implementation Program**

- ◆ In the San Juan River system, nonnative fish can be an impediment to the survival of native fish. Some species, such as channel catfish, are being directly controlled while control of other species, such as the red shiner, is

being attempted through restoration of the natural flow regime and restoration of river habitat. Resources are also focused on the removal of striped bass as they enter the river from Lake Powell during spring runoff.

- ◆ The effort to remove nonnative fish has increased and will be further expanded in 2002. The additional efforts have resulted in removal of large numbers of channel catfish and common carp from the system. In addition, the mean size of channel catfish in the Hogback to the Public Service Company of New Mexico weir reach has been reduced from 19 inches in 1999 to 16 inches in 2001. This benefits the endangered fishes by removing spawning catfish from the system.
- ◆ The Recovery Program is working with the Navajo Nation and the State of New Mexico to transplant nonnative fish from the river to local lakes.
- ◆ Full participation of the public in the San Juan River Recovery Implementation Program is invited through public meetings. The Recovery Program also maintains a web site at <http://southwest.fws.gov/sjrip>.

## Endangered Fish Propagation and Stocking

**Upper Colorado River Endangered Fish Recovery Program**

- ◆ The Recovery Program funds operations of four hatchery facilities in Colorado and Utah:
  - The Grand Valley Endangered Fish Facility (Grand Junction, Colorado) produced nearly 50,000 razorback sucker to be placed in growout ponds in spring 2002 and stocked in the Colorado and Gunnison rivers in fall 2002.
  - The J.W. Mumma Native Aquatic Species Restoration Facility (Alamosa, Colorado) is celebrating its second year of operation and is raising 25,000 bonytail and 15,000 razorback sucker. This summer, the facility will begin to raise Colorado pikeminnow.
  - The Wahweap State Fish Hatchery (Big Water, Utah) raised 94,000, 4-to 6-inch bonytail in 2001 that were stocked in the Colorado and Green rivers. The hatchery will produce more than 15,000, 8-inch bonytail to stock in fall 2002.
  - The Ouray National Fish Hatchery (Ouray, Utah) raised and stocked more than 11,000 razorback sucker for the Green River system. More than 13,000, 12-inch razorback sucker will be stocked in fall 2002.
- ◆ All four facilities use off-site, private and public ponds to expand their ability to raise greater numbers of fish. Private citizens, and city and State agencies donate or lease ponds to the Recovery Program.

In Page, Arizona, high school students raise razorback sucker in donated golf course ponds. The Colorado Department of Transportation donated the use of a pond — also for razorback sucker. In another cooperative move, the Service modified existing ponds at the Ouray National Wildlife Refuge in Utah to raise endangered fish.

- ◆ The States of Colorado and Utah revised their endangered fish stocking plans to larger, but fewer, fish. This change is anticipated to reestablish populations of razorback sucker and bonytail in a more timely manner.



Debbie Feltner

**Utah Division of Wildlife Resources Biologist Quent Bradwisch teaches high school students how to take eggs from a razorback sucker. As part of their science curriculum, the students are raising razorback sucker in public golf course ponds in Page, Arizona.**

### San Juan River Basin Recovery Implementation Program

- ◆ In 2001, 16.5 surface acres of new growout ponds for razorback sucker were built on Navajo Indian Irrigation Project lands. This brings the total pond space to 25 surface acres. The new growout ponds were filled with water in the fall of 2001 and will be stocked with larval razorback sucker in the spring 2002.
- ◆ So far, approximately 6,800 razorback sucker have been stocked in the San Juan River. Young razorback sucker found in the river indicate that formerly stocked razorback sucker are surviving and spawning.

- ◆ In 2001, 148 adult Colorado pikeminnow were stocked in the San Juan River and approximately 800,000 larval Colorado pikeminnow have been stocked to date. It is anticipated that 200,000 Colorado pikeminnow fingerlings will be stocked in the fall 2002.
- ◆ The San Juan River Biology Committee is finalizing the genetics and augmentation plans for both the Colorado pikeminnow and the razorback sucker. These plans will outline the number of fish that will be stocked to help achieve the recovery goals.

## Research, Monitoring, and Data Management

### Upper Colorado River Endangered Fish Recovery Program

- ◆ Collections of young razorback sucker and Colorado pikeminnow in the Green and Yampa rivers were used to help manage releases from Flaming Gorge Dam. Seasonal releases from the dam are patterned to enhance habitat conditions for endangered fishes.
- ◆ Colorado pikeminnow collected from the Colorado River near Grand Junction, Colorado, were relocated to river sections above nearby diversion dams. This work is part of efforts to expand populations into historic habitats that have been inaccessible since the early 1900's. Biologists radio-track the fish to monitor their survival, movements, and habitat preferences.
- ◆ Cooperative efforts of State, Federal, and private agencies resulted in successful implementation of extensive studies to develop reliable abundance estimates for endangered fish populations. This endeavor involves several populations scattered across hundreds of river miles, and is perhaps the largest of its kind ever attempted for freshwater fishes. Results are used to measure progress toward achieving demographic recovery criteria for self-sustaining populations (see page 15).



Utah Division of Wildlife Resources

**Biologists electrofish in search of Colorado pikeminnow. Once netted, the fish are weighed, measured and tagged as part of estimating the number of Colorado pikeminnow in the Green River.**

### San Juan River Basin Recovery Implementation Program

- ◆ Research activities continue with the completion of the population model, water temperature analysis and modeling, characterization of the spawning bar being utilized by razorback sucker, and a determination of the occurrence of hybridization of razorback sucker.
- ◆ The Program continues to monitor the fish community in the San Juan River, the drifting larval fish, the channel morphology, and water temperature and quality.
- ◆ The integration report, proposed for completion in 2002, will integrate data collected and determine the response. Data will be used to evaluate and update flow recommendations as well as the standardized monitoring and long-range plans.

- ◆ During 2002, a peer review panel will assist the Biology Committee in the integration of research findings and monitoring data to assess response of the endangered fishes and habitats to Recovery Program activities, including flow recommendation implementation, stocking, and nonnative species control.
- ◆ A Hydrology Committee was established in 2001 to review and evaluate all hydrology-related information pertinent to the San Juan Program. The Committee is responsible for reviewing the current model and providing recommendations for model improvements. The Committee is also charged with evaluating any proposed changes to the operating rules for Federal reservoirs in the San Juan Basin.
- ◆ The Hydrology Committee is currently revising data regarding irrigated acreages and other diversions in Colorado and New Mexico. Data sets are also being extended back to 1929.

# Recovery Goals Provide Measures For Success

After more than two years of collaboration with States, water and power providers, environmental organizations, Native American tribes, and Department of the Interior agencies, the U.S. Fish and Wildlife Service (Service) has developed draft recovery goals for the endangered humpback chub, bonytail, Colorado pikeminnow, and razorback sucker of the Colorado River Basin. The goals define the basis for recovery of the fishes in the upper and lower basins by specifying the numbers of fish comprising self-sustaining populations (see table below) and identifying management actions/tasks required to downlist and delist the species. The goals also provide estimates of time to achieve recovery.

Upon completion of the recovery goals, the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program will use this important information to further focus and expand their aggressive efforts to bring the four fish species back from the brink of extinction. The Recovery Programs will stock hatchery-produced fish, control nonnative fishes, and improve

habitat to maintain or restore populations and remove the species from the Endangered Species list. Consistent with the governing documents of the Upper Colorado River and San Juan River Recovery Programs, the recovery goals adhere to State and Federal laws related to the Colorado River System ("Law of the River"), including State water law, interstate compacts, and Federal trust responsibilities to Native American tribes.

The draft recovery goals are comprehensive, biologically sound, and provide reasonable criteria for recovery. However, research-based adaptive management may lead to modification of some assumptions upon which the species were listed. Monitoring populations will help guide this process, and population estimates will serve as the starting place against which recovery progress is measured.

A Notice of Availability of the draft recovery goals was published in the *Federal Register* on September 10, 2001. The Service is now reviewing and responding to more than 80 comments received and is developing final goals that are expected to be published in 2002.

PROPOSED DEMOGRAPHIC CRITERIA FOR RECOVERY	
DOWNLISTING	DELISTING
<p><b>Over a 5-year monitoring period:</b></p> <ul style="list-style-type: none"> <li>Maintain the six populations ("no net loss")</li> <li>One core population in upper basin &gt; 2,100 adults</li> <li>One core population in lower basin &gt; 2,100 adults</li> </ul>	<p><b>Humpback Chub</b></p> <p><b>For 3 years beyond downlisting:</b></p> <ul style="list-style-type: none"> <li>Maintain the six populations ("no net loss")</li> <li>Two core populations in upper basin &gt; 2,100 adults</li> <li>One core population in lower basin &gt; 2,100 adults</li> </ul>
<p><b>Over a 5-year monitoring period:</b></p> <ul style="list-style-type: none"> <li>Maintain reestablished populations in Green River and upper Colorado River subbasins, each &gt; 4,400 adults</li> <li>Maintain established genetic refuge of adults in lower basin</li> <li>Maintain two reestablished populations in lower basin, each &gt; 4,400 adults</li> </ul>	<p><b>Bonytail</b></p> <p><b>For 3 years beyond downlisting:</b></p> <ul style="list-style-type: none"> <li>Maintain populations in Green River and upper Colorado River subbasins, each &gt; 4,400 adults</li> <li>Maintain genetic refuge of adults in lower basin</li> <li>Maintain two populations in lower basin, each &gt; 4,400 adults</li> </ul>
<p><b>Over a 5-year monitoring period:</b></p> <ul style="list-style-type: none"> <li>Maintain the upper basin metapopulation</li> <li>Maintain populations in Green River and upper Colorado River subbasins (no net loss")</li> <li>Green River subbasin population &gt; 2,600 adults</li> <li>Upper Colorado River subbasin population &gt; 700 adults</li> <li>Establish 1,000 age 5+ subadults in San Juan River</li> </ul>	<p><b>Colorado Pikeminnow</b></p> <p><b>For 7 years beyond downlisting:</b></p> <ul style="list-style-type: none"> <li>Maintain the upper basin metapopulation</li> <li>Maintain populations in Green River and upper Colorado River subbasins ("no net loss")</li> <li>Green River subbasin population &gt; 2,600 adults</li> <li>Upper Colorado River subbasin population &gt; 1,000 adults OR Upper Colorado River subbasin population &gt; 700 adults and San Juan River population &gt; 800 adults</li> </ul>
<p><b>Over a 5-year monitoring period:</b></p> <ul style="list-style-type: none"> <li>Maintain reestablished populations in Green River subbasin and EITHER in upper Colorado River subbasin or in San Juan River, each &gt; 5,800 adults</li> <li>Maintain established genetic refuge of adults in Lake Mohave</li> <li>Maintain two reestablished populations in lower basin, each &gt; 5,800 adults</li> </ul>	<p><b>Razorback Sucker</b></p> <p><b>For 3 years beyond downlisting:</b></p> <ul style="list-style-type: none"> <li>Maintain populations in Green River subbasin and EITHER in upper Colorado River subbasin or in San Juan River, each &gt; 5,800 adults</li> <li>Maintain genetic refuge of adults in Lake Mohave</li> <li>Maintain two populations in lower basin, each &gt; 5,800 adults</li> </ul>

# Water Project Consultations

Under Section 7 of the Endangered Species Act

**Table 1**  
**Upper Colorado River Endangered Fish Recovery Program**  
**Summary of Section 7 Consultations**

(1/1988 through 12/31/2001)

State	Number of Consultations	Historic Depletions	New Depletions	Totals	
		Acre-feet/yr	Acre-feet/yr	Acre-feet/yr	Depletion Fees <sup>4</sup>
Colorado <sup>1</sup>	191	1,024,831.44	134,275.82	1,159,107.26	\$ 440,844
Utah	28	421,867.74	65,793.95	487,661.69	454,866
Wyoming	34	4,433.39	16,885.22	21,318.61	168,575
Regional <sup>2,3</sup>	396	0.00	6,000.00	6,000.00	0
<b>Totals</b>	<b>649</b>	<b>1,451,132.57</b>	<b>222,954.99</b>	<b>1,674,087.56</b>	<b>\$ 1,064,285</b>

<sup>1</sup> Depletion amounts include the 15-Mile Reach Programmatic Biological Opinion, 12/20/99, on 1 million AF/yr of historic depletions (through September 30, 1995) and up to 120,000 AF/yr of new depletions (since September 30, 1995) in the Colorado River above the confluence with the Gunnison River. Thus far, the 15-Mile Reach PBO has covered 115 actual projects.

<sup>2</sup> Depletion charges waived by USFWS for consultations on depletions of less than 100 AF/yr.

<sup>3</sup> Represents 3 blanket consultations for depletions under 100 AF/yr, up to 6,000 AF/yr total. These three consultations have covered 396 actual projects depleting 5,831 AF (4,143 AF/yr in Colorado, 1,050 AF/yr in Utah, and 638 AF/yr in Wyoming).

<sup>4</sup> Pre-FY 1990: \$10/AF; FY 2002: \$15.25/AF.

**Table 2**  
**San Juan River Basin Recovery Implementation Program**  
**Summary of Section 7 Consultations**

State	Historic Depletions	New Depletions	Totals
	Acre-feet/yr	Acre-feet/yr	Acre-feet/yr
New Mexico <sup>1,3</sup>	590,863.00	3,000.00	593,863.00
Colorado <sup>2,3</sup>	184,714.00	57,100.00	241,814.00
Utah <sup>3</sup>	9,140.00	0.00	9,140.00
<b>Totals</b>	<b>784,717.00</b>	<b>60,100.00</b>	<b>844,817.00</b>

<sup>1</sup> New depletion includes minor depletions (less than 100 AF), estimated at 3,000 AF.

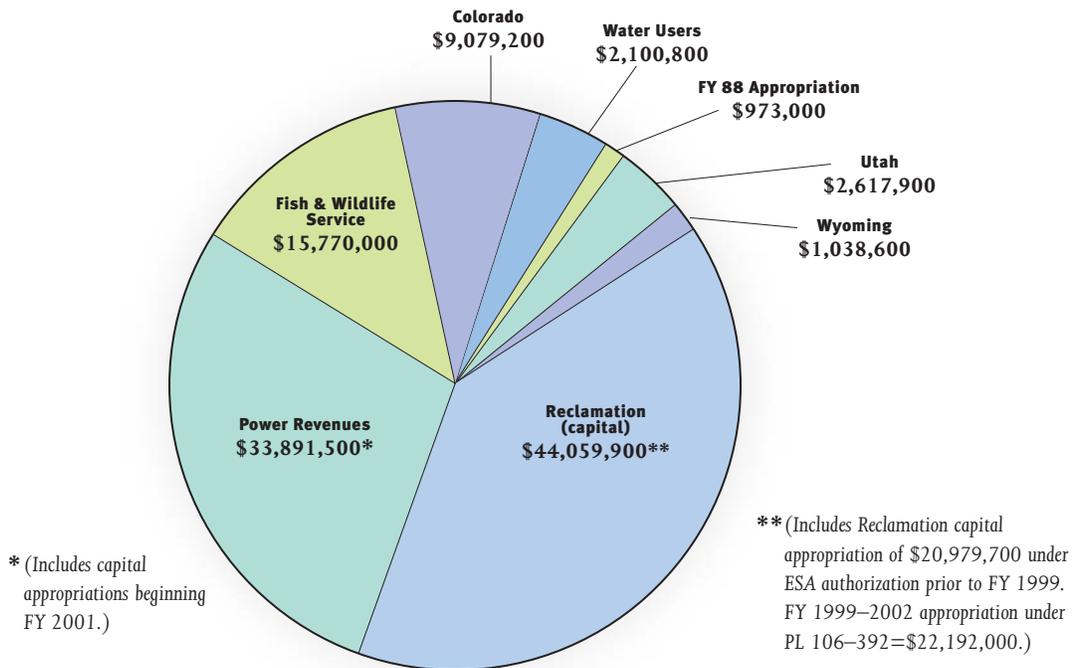
<sup>2</sup> New depletion associated with Animas-La Plata Project.

<sup>3</sup> Source: 2000 Animas-La Plata Project Biological Opinion.

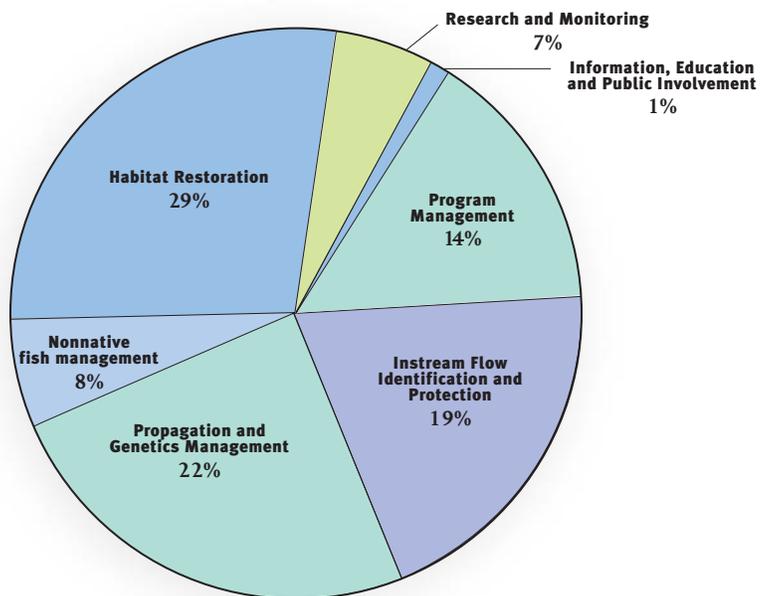
# Expenditures

## Upper Colorado River Endangered Fish Recovery Program

Total Expenditures = \$109,530,900 (FYs 1989–2002)



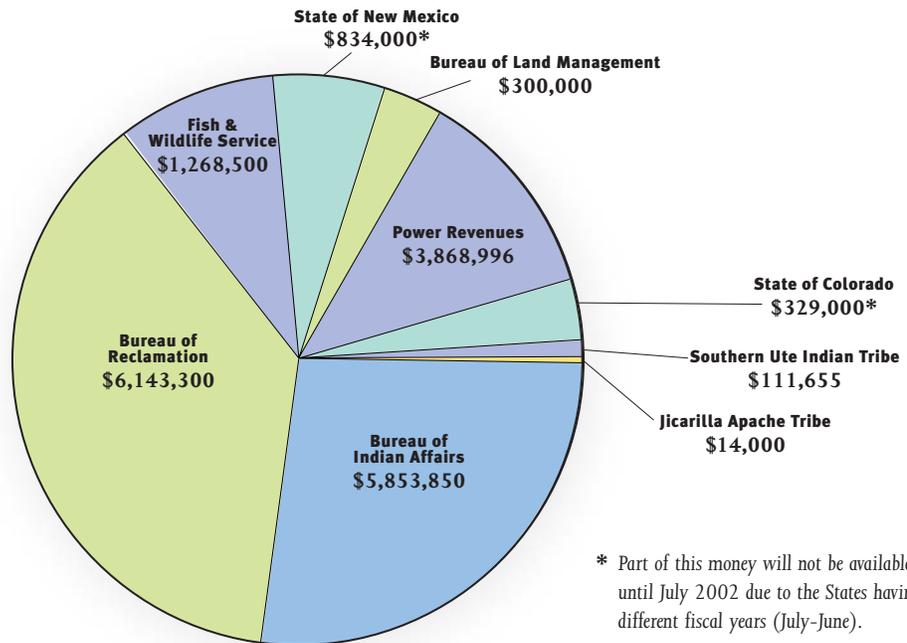
Percentage Expenditures by Category (FY 2002 only)



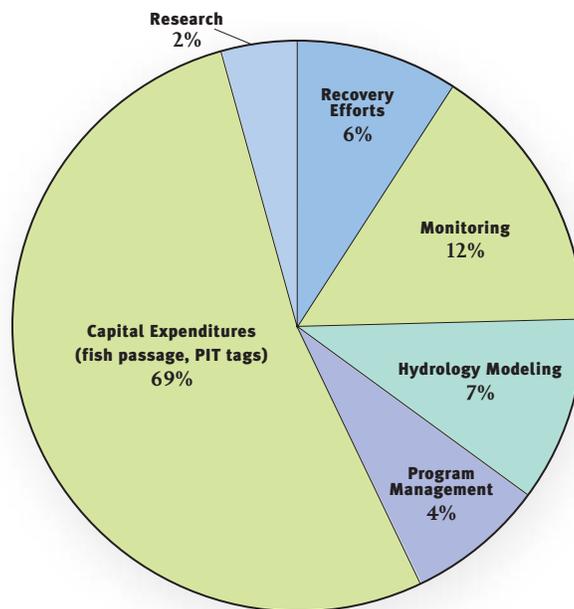
# Expenditures

## San Juan River Basin Recovery Implementation Program

Total Expenditures = \$18,723,301 (FYs 1992–2002)  
 (Not including in-kind contributions)



Percentage Expenditures by Category (FY 2002 only)





**An unhappy Mary Rutledge poses with a stringer of bonytail and Colorado pikeminnow caught near Moab, Utah, around 1920.**



**Green River, Utah trapper Mac McDowell thought razorback suckers were “better than catfish.”**

Photos were gathered from interviews obtained in the spring and summer of 1991.



**Florence Barnes stands next to a Colorado pikeminnow caught in Lily Park during the early 1930's.**

## Preserving the West's Heritage

The Upper Colorado River and San Juan River Basin Recovery Programs are national models of cost-effective, public and private partnerships working to recover endangered species while allowing water development to continue in accordance with State law and interstate compacts. The Programs' efforts will help ensure that the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail remain an important part of the West's heritage.



**A group of early anglers pose with their catch near Fruita, Colorado.**